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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,659	02/15/2006	**Carl Towns**	3724.1008-000	5024

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EXAMINER	
NGUYEN, KHANH TUAN	
ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
06/16/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/568,659	TOWNS ET AL.	
	Examiner	Art Unit	
	KHANH T. NGUYEN	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *rce filed on 04/01/2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-27,31-35,41-46 and 48-50* is/are pending in the application.

4a) Of the above claim(s) *31-35,45 and 46* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-27,41-44 and 48-50* is/are rejected.

7)☒ Claim(s) *49* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *none*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/01/2010 has been entered.

Response to Amendment

2. The amendment filed on 03/08/2010 is entered and acknowledged by the Examiner. Claims 24-27, 41-44 and newly added claims 48-50 are currently pending in the instant application. Non-elected claims 31-35, 45, and 46, remain withdrawn from further consideration. Claims 1-23, 28-30, 36-40 and 47 have been cancelled.

3. The rejection of claims 24-27, 41-44 and 47 remain unpatentable over WO 99/32537 (Allen), the English equivalent to U.S. Pat. 6,630,566 B1, for the reason set forth therein.

Claim Objections

4. Claim 49 is objected to because of the following informalities: the instant claim recites, "the first repeating unit is the range from 1 to 50 mol%." At page 10, lines 19-20 of the instant specification, applicant discloses "the repeat unit...is preferably present in the polymer in 1 to 50 mol%". Therefore, the applicant is suggested to amend the claim to read -- the first repeating unit is presence in the polymer in the range from 1 to 50 mol%--. Appropriate correction is required.

Claim Rejections - 35 USC § 102/103

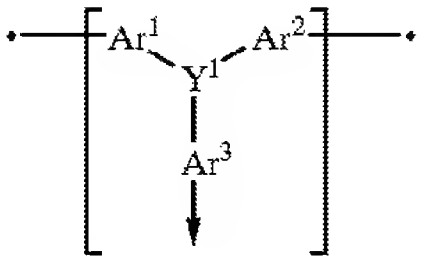
5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. **Claims 24-27, 41-44 and 48-50 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Pat. 6,630,566 B1 (Allen).**

Regarding claims 24-27, 48, and 50, Allen discloses "a polymeric material comprising at least one repeating unit, the or each of more than one) repeating unit consisting of a moiety of formula 1" (Emphasis added). (See Abstract; Col. 12, lines 28-30). Likewise, Allen discloses a method of making the polymeric material comprising a step of

"performing polymerization of at least one polymer precursor (preferably at least one monomer) of Formula 4" (Emphasis added). (Col. 28, lines 8-29). The phase "at least one" means two or more polymer precursors or monomers (repeating units) can be included in the polymeric material (polymer). Allen discloses the formula 1 (similarly Formula 4) having a structure of:

Formula 1



in which Y^1 represents N, P, S, As and/or Se, Ar^1 and Ar^2, which may the same or different, represent independently a multivalent, optionally substituted aromatic group, and Ar^3 represents independently a mono or multivalent, optionally substituted aromatic group. At least one terminal group is attached in the polymer to the Ar^1, Ar^2 and optionally Ar^3 groups located at the end of the polymer chains, so as to cap the polymer chains and prevent further polymer growth.

Allen teaches that Y^1 can be selected from N, P, S, As and Se. That is, a combination of N, P, S, As and Se may be used. Based on Allen's teaching, a person skilled in the art would immediately envisage the claimed polymer

(polymeric material) by combining two or more repeating unit as suggested by Allen wherein one repeating unit is selected from triarylphosphine (first repeating unit), i.e. Y^1 is selected from phosphorous, and the other repeating units, i.e. Y^1 = N, S, As and/or Se, to meet the claimed second repeating unit. It has been held by the Court that "[w]hen the compound is not specifically named, but instead it is necessary to select portions of teachings within a reference and combine them, e.g., select various substituents from a list of alternatives given for placement at specific sites on a generic chemical formula to arrive at a specific composition, anticipation can only be found if the classes of substituents are sufficiently limited or well delineated. *Ex parte A*, 17 USPQ2d 1716 (Bd. Pat. App. & Inter. 1990). If one of ordinary skill in the art is able to "at once envisage" the specific compound within the generic chemical formula, the compound is anticipated. One of ordinary skill in the art must be able to draw the structural formula or write the name of each of the compounds included in the generic formula before any of the compounds can be "at once envisaged." One may look to the preferred embodiments to determine which compounds can be anticipated. *In re Petering*, 301 F.2d 676, 133 USPQ 275

(CCPA 1962). In *In re Petering*, the prior art disclosed a generic chemical formula "wherein X, Y, Z, P, and R"-represent either hydrogen or alkyl radicals, R a side chain containing an OH group." The court held that this formula, without more, could not anticipate a claim to 7-methyl-9-[d, l"-ribityl]-isoalloxazine because the generic formula encompassed a vast number and perhaps even an infinite number of compounds. However, the reference also disclosed preferred substituents for X, Y, Z, >P,< R, and R" as follows: where X, P, and R" are hydrogen, where Y and Z may be hydrogen or methyl, and where R is one of eight specific isoalloxazines. The court determined that this more limited generic class consisted of about 20 compounds. The limited number of compounds covered by the preferred formula in combination with the fact that the number of substituents was low at each site, the ring positions were limited, and there was a large unchanging structural nucleus, resulted in a finding that the reference sufficiently described "each of the various permutations here involved as fully as if he had drawn each structural formula or had written each name." The claimed compound was 1 of these 20 compounds. Therefore, the reference "described" the claimed compound

and the reference anticipated the claims." The polymeric material of Allen anticipates the claimed polymer.

In the alternative that the above disclosure is insufficient to anticipate the above listed claims, it would have nonetheless been obvious to the skilled artisan to produce the claimed polymer by selecting a triarylphosphine repeating unit and combining it with another repeating unit that is different because the Court has held that a multitude of effective combinations does not render any particular formulation less obvious. The fact that reference suggests multitude of possible combinations, does not in and of itself, make any one of those combinations less obvious. See Merck v. Biocraft, 10 USPQ2d 1843 (Fed. Cir. 1989). The fact that prior art composition and claimed composition were intended to be used for the same purpose weighed towards obviousness.

Regarding claim 41-44, Allen discloses the polymeric material is used for electroluminescent (EL), optical sensors, and switching devices to name a few (Col. 14, lines 6-44).

Regarding claim 49, one skilled in the art would immediately envisage a 50:50 molar ratio of triarylphosphine (first repeating unit): the other triaryl

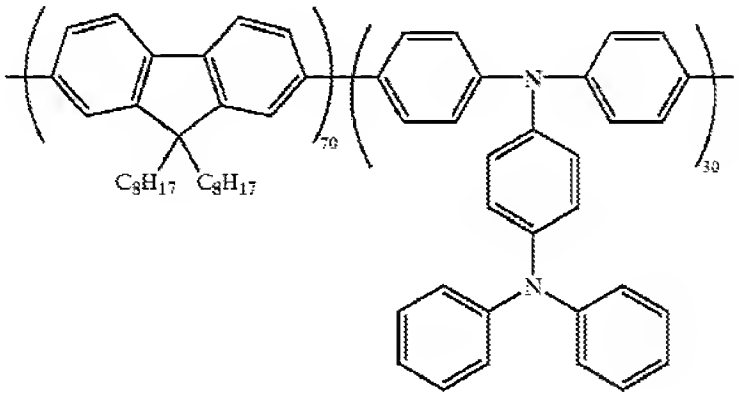
compounds (second repeating unit). *In re Petering*, 301 F.2d 676, 133 USPQ 275 (CCPA 1962).

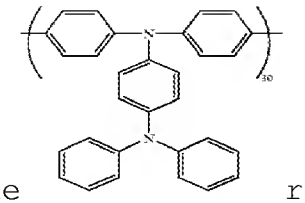
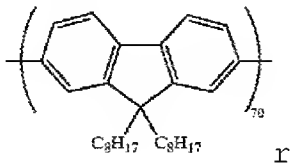
Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. **Claims 24-27, 41-44 and 48-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over by U.S. Pub. 2003/0165713 A1 (Oguma) in view of Allen.**

Oguma discloses a polymer compound useful as a light-emitting material (LED), a material for organic solar battery, a material for an organic transistors, and a material for electronic devices [0250]. Oguma discloses the polymer compound represented by a formula structure (See page 24, paragraph [0217]):

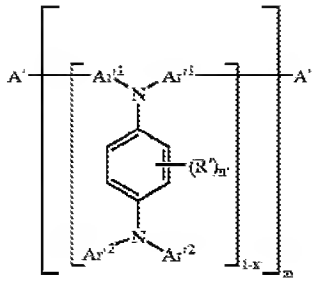


The  repeating unit is considered the first repeating unit and 

repeating unit is considered the second repeating unit. The second repeating unit of Oguma fulfills the claimed second repeating unit selected from indenofluorene.

Oguma differ from the claimed application in that Oguma discloses a triphenylamine derivative first repeating unit instead of a triphenylphosphine repeating unit (formula (I)) as required in the instant claims. More specifically, the first repeating unit of Oguma contains a nitrogen rather than a phosphorous at the E site.

In the same field of endeavor, Allen discloses a polymer useful as light-emitting material, solar cell and/or battery, and organic (FETs) field effect transistor to name a few (Col. 14, lines 6-44). Allen discloses the polymer comprising of at least one repeating unit having formula:



when X^- is zero (0). (See Col. 5, line 40 to Col. 6, line 4). Allen further teaches that a triaryl compound of formula (I) having a nitrogen site (Y^1) can be substituted by phosphorous (Col. 12, lines 30-40).

Oguma and Allen are combined because they are drawn to a polymer comprising of polyarylamine repeating unit that is useful as light-emitting material, solar cell and/or battery, and organic (FETs) field effect transistor. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the polymer of Oguma by substituting the nitrogen for phosphorous on the first repeating unit of Oguma as suggested by Allen and the result would have been predictable because Allen suggest a polymer comprising of the triphenylamine of Oguma and/or the claimed triphenylphosphine having the same utility. The burden is upon the applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594.

In view of the foregoing, the above claims have failed to patentably distinguish over the applied art.

Response to Arguments

9. Applicant's arguments filed on 03/08/2010 have been fully considered but they are not persuasive.

In response to the applicant's remark on pages 7-8, the applicant argues that Allen does not provide any specific examples of compounds wherein Y^1 is a phosphorous atom, let alone having a second repeating unit being different and having a phosphorous atom. The examiner respectfully disagrees with the applicant's argument. While Allen does not specifically exemplify a compound wherein Y^1 is a phosphorous atom, nonetheless Allen teaches Y^1 can be selected from phosphorous atom, i.e. Y^1 represents N, P, S, As and/or Se (See Abstract). Furthermore, Allen discloses the polymer (polymeric material) comprising of "**at least one** repeating unit, the or **each of more than one**) repeat unit consisting of a moiety of Formula 1:" (Emphasis added). (Col. 12, lines 27-35). Clearly, the phase "at least one" repeat units and phase "each of more than one" repeat units suggest that a plurality of repeat units. In addition, Allen discloses "Y^1 represents, **independently if in different repeat unit**, N, P, S, As and/or Se preferably

N:" (Emphasis added). Clearly, Allen completed that in different repeat unit Y^1 is independently selected from N, P, S, As and/or Se. Moreover, the phase "different repeat unit" clearly suggest that the repeat units are not the same, namely one repeat can contain N and the other repeat unit can contain P. Based on this rational, Allen does discloses compounds wherein Y^1 is a phosphorous atom and one having a second repeating unit being different.

At page 8 of the remark, the applicant argues that "[c]learly Allen believes that N is the preferable Y^1 and not P. Not only is the value of phosphorous only one of five possible values for Y^1 in Allen's generic disclosure, but also not one of the thirty-two examples disclosed in column 34 through column 66 of Allen includes a phosphorus atom as the value of Y^1. Examples 1-32 all have N as Y' Clearly the claims cannot be anticipated!" It is known that all disclosures of the prior art, including non-preferred embodiment, must be considered. See In re Lamberti and Konort, 192 USPQ 278 (CCPA 1967); In re Snow 176 USPQ. Furthermore, selecting P from a list for five possible values for Y^1 to meet the first repeating unit and the second repeating unit can any other value of Y^1 is

anticipated. See *In re Petering*, 301 F.2d 676, 133 USPQ 275 (CCPA 1962).

At page 9 of the remark, the applicant argues that "Allen provides no reason or motivation to select phosphorous over any other five possible values of Y^1 especially, when Allen actually teaches that is preferable to select N as Y^1". The examiner respectfully disagrees with the applicant argument. Allen teaches Y^1 represents N, P, S, As **and/or** Se (See Abstract). The substitution of equivalents requires no express motivation as long as the prior art recognizes the equivalency. In *re* Fount *USPQ 532* (CCPA 1982); *In re* Siebentritt, 152 *USPQ* 618 (CCPA 1967); Graver *Tank & Mfg. Co. Inc. v Linde Air Products Co.*, 85 *USPQ* 328 (USSC). In the instant case, a person of ordinary skill in the art could expect that the substitution of N for P would provide a functionally equivalence repeat unit because structurally similar compounds are generally expected to have similar properties, i.e. similar functions. In re Gvurik, 596 F. 2d 1012,201 USPQ 552.

Based on the above rational, it is believed that the claimed limitations are met by the reference submitted and therefore, the rejection of claims 24-27, 41-44 and 47 remain unpatentable over Allen is maintained.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHANH T. NGUYEN whose telephone number is (571)272-8082. The examiner can normally be reached on Monday-Thursday 7:00-6:00 EST PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Khanh Tuan Nguyen/
Examiner, Art Unit 1796